



National Energy Board

**Response to Transportation Safety
Board Recommendations in
Report No. P91H0109**

NEB Report R94-1

June 1994

Table of Contents

102-04832/

- 1.0 Introduction**
- 2.0 Recommendation P94-01: Quality Assurance of Pipelines**
- 3.0 Recommendation P94-02: Quality Assurance of Pipelines**
- 4.0 Recommendation P94-03: Emergency Response**
- 5.0 Recommendation P94-04: Emergency Communications**
- 6.0 Recommendation P94-05: Ignition of Liquefied Petroleum Gas**

Response to Transportation Safety Board Recommendations in Report No. P91H0109

1.0 Introduction

On 26 April 1994 the Transportation Safety Board (TSB) released a report¹ on a pipeline rupture which occurred on 9 January 1991 near Broadview, Saskatchewan, on the Petroleum Transmission Company (PTC) pipeline system. The TSB determined that the cause of the pipe rupture was a fatigue failure at a longitudinal seam weld defect which resulted from long-term internal pressure fluctuations. As a result of its investigation, the TSB made five recommendations to the National Energy Board (NEB). This report sets out the NEB's response to those recommendations.

2.0 Recommendation P94-01: Quality Assurance of Pipeline

The National Energy Board review the records of manufacturing defects in the electric resistance weld seams of other pipeline companies and assess the inherent risk of leaks or failures.

The recommendation assumes that a review of the records of manufacturing defects would allow a thorough assessment of the risk of leaks or failures in ERW pipe. The NEB considers that the actual hydrostatic and service failure history of a pipeline system would provide a more useful and accurate assessment since the likelihood of failure of manufacturing defects depends significantly on the operating conditions of the pipeline. Accordingly, the NEB will conduct a survey of companies under its jurisdiction that have experienced failures on ERW pipe involving manufacturing defects. The survey is intended to gather information on ERW pipes, including hydrotest and service failure history, operating conditions, pipe manufacturing data, and failure mechanisms. Where the information submitted to the NEB indicates that there may be an unacceptable risk of operational failure, corrective action will be taken.

3.0 Recommendation P94-02: Quality Assurance of Pipeline

The National Energy Board evaluate the need for better quality assurance standards during the fabrication, distribution and installation of pipe and pipeline components for onshore pipelines.

In accordance with the TSB recommendation, the NEB has conducted a detailed evaluation of the need for better quality assurance for onshore pipelines.

¹ TSB Commodity Pipeline Occurrence Report P91H0109, 09 February 1994

The requirements for quality assurance for onshore pipelines are set out in the NEB's *Onshore Pipeline Regulations* and in the Canadian Standards Association (CSA) standards which are incorporated by reference into the *Regulations*. Section 19 of the *Regulations* requires companies to establish a quality assurance program for the manufacture of pipe and components.

In its report, the TSB makes reference to the fact that the PTC failure originated from pipe manufacturing defects. The NEB notes that the PTC failure investigated by the TSB involved pipe manufactured in the mid-1960's. Since that time, there have been significant improvements in pipe manufacture and nondestructive testing technology. The practices of that time are not reflective of current practice and there is no evidence that pipe manufactured under today's standards would be susceptible to the same problems experienced on the PTC system. Therefore, the NEB is of the view that the requirements currently set out in the *Regulations* and in the CSA standards in respect of the quality assurance for the manufacture of pipe and components are adequate.

The TSB further recommends that the NEB evaluate the need for better quality assurance standards for the distribution and installation of pipe and components for onshore pipelines. With respect to pipelines under its jurisdiction, the NEB is not aware of any widespread problem resulting from inadequate quality assurance practices that could usefully be dealt with by more stringent regulations or standards in this area.

4.0 Recommendation P94-03: Emergency Response

The National Energy Board require the promulgation of standard operating procedures for control room operations of a pipeline system to include potential emergency situations that can arise during the operational life of a pipeline.

In arriving at this recommendation, the TSB states in its report (Section 4.2.2, p.17) that "...there are no directives regarding shift change procedures, response to batch tracking errors or guidelines for the overriding of emergency signals".

In respect of shift change procedures, common industry practices include the use of logbooks to record significant events from the previous shift and an overlap between shifts so that the incoming personnel may be apprised of any problems, concerns or ongoing developments and activities from the previous shift. The NEB recognizes that shift changes in a control room should not result in an interruption in the continuous monitoring of pipeline operations and that effective communication between shifts is essential. Although there is no indication of any widespread problem in the pipeline industry resulting from shift changes that could usefully be dealt with by the development and promulgation of new standards or regulations, the NEB will distribute the TSB's report to companies under its jurisdiction in order to raise the industry's awareness of the concerns raised by the TSB.

In respect of response procedures for batch tracking errors or guidelines for the overriding of emergency signals, the NEB is of the view that detailed emergency response procedures for each control centre are generally specific to each pipeline system and would depend on the detectability and consequences of a leak on the system, as well as on the response capabilities of the company. Accordingly, it would be impractical to standardize procedures for control room operations that would be applicable to all pipeline systems. The *Onshore Pipeline Regulations* currently require each company to develop procedures specific to its pipeline system and to incorporate those procedures in the company's Operation and Maintenance Manuals.

Proposed amendments to the *Regulations* were issued to the industry for comment on 6 May 1994. The proposed amendments would require that the following be included in a company's Operation and Maintenance Manuals:

- 48.(1) (f) *information and procedures in respect of the pipeline control system, including, where applicable:*
- (i) *the supervisory control and data acquisition system;*
 - (ii) *the communication facilities;*
 - (iii) *the procedures used to detect leaks, respond to alarms, and interpret anomalies;*
 - (iv) *the material balance system and the rules for interpretation of any imbalances in the material balance calculation; and*
 - (v) *the procedures used to detect any malfunctions of the control system, including details of the corrective action to be taken.*

The proposed amendments are intended to enhance the response capabilities of companies in the event of leaks or failures on their systems. Nevertheless, regardless of how detailed and extensive a company's control room procedures may be, they are only one component of the company's emergency response. The NEB considers that a properly trained and qualified control room operator provides for a more effective method of assessing and responding to anomalies in a pipeline control system than standard control room procedures. The training requirements in the *Regulations* and in the CSA standards are intended to ensure that control room operators are properly trained and qualified.

5.0 Recommendation P94-04: Emergency Communications

The National Energy Board audit the policies, procedures and operating practices of all federally regulated pipelines to help ensure that effective emergency communication to all first responders and affected parties is maintained during emergency situations.

The *Onshore Pipeline Regulations* currently include requirements in respect of communications during emergencies. The pertinent sections are summarized below.

48. Pipeline companies are required to have Emergency Procedures in place.
- 49.(1) The Emergency Procedures are required to include, among other things, the names and telephone numbers of public services and other agencies that might have to be contacted in the case of an emergency; the plans for cooperation with appropriate public agencies during an emergency; and evacuation procedures.
- 49.(2) Companies are required to update their Emergency Procedures on a regular basis in conjunction with appropriate agencies.
50. For high vapour pressure (HVP) pipelines, the company is required, at least once every 12 months, to distribute to the police, fire departments and other appropriate local agencies and to the public residing adjacent to the pipeline, information pertaining to the identification of emergency situations involving the pipeline and the safety procedures to be followed in the case of an emergency.

In addition, a proposed amendment would require that the Emergency Procedures include contingency

plans for the immediate protection of the public.

In accordance with its ongoing pipeline safety program, the NEB regularly audits pipeline companies under its jurisdiction to monitor compliance with its *Regulations*. As part of those audits, NEB staff generally review company Emergency Procedures and verify that they meet the requirements pertaining to effective communications during emergency situations. Therefore, the NEB has in place the audit process envisioned in the TSB's recommendation.

The proposed amendments to the *Regulations* also include changes to the training requirements for emergencies. As with control room operators, the NEB considers that proper training is essential for emergency response personnel. Accordingly, the proposed amendments issued on 6 May 1994 supplement the current training requirements with a specific provision for emergency exercises. Such exercises provide a unique and essential learning opportunity for emergency responders which cannot be achieved through formal classroom instruction and are essential for the development of effective emergency communication procedures and skills.

6.0 Recommendation P94-05: Ignition of Liquefied Petroleum Gas

The National Energy Board ensure that emergency response manuals of federally regulated pipelines conveying high-pressure hydrocarbons clearly specify procedures to be followed when attempting to ignite a vapour plume.

Section 49 of the *Onshore Pipeline Regulations* require that a company's Emergency Procedures include the procedures to be followed at the site of the emergency, as well as the safety precautions to be taken during an emergency, including the methods for monitoring the hazard level at the site. In the case of pipelines transporting HVP products, such procedures must include those for the safe ignition of vapour plumes. The NEB will advise companies accordingly.

As previously noted, the NEB routinely audits the Emergency Procedures of pipeline companies under its jurisdiction. The audit checklist used by NEB staff will be amended to include a specific reference to procedures for the ignition of vapour clouds.

The NEB considers that the procedures followed by PTC personnel in the field in respect of the ignition of the vapour plume were satisfactory and that there is no need to direct PTC to amend its Emergency Response Procedures Manual.